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Agenda Item 6b

March 14, 2011

TO: MEMBERS OF THE INVESTMENT COMMITTEE

- I. **SUBJECT:** Risk Management Quarterly Update
- II. **PROGRAM:** Total Fund
- III. **RECOMMENDATION:** Information
- IV. **ANALYSIS:**

Introduction

The purpose of this item is to provide a quarterly report on Total Fund investment risk to the Investment Committee (the Committee). The format of this item is consistent with the previous quarterly update.

Macro Risks

1. **Geopolitical:**
Recent political upheavals in the Middle-East have caused oil prices to spike to nearly \$110 per barrel. Persistently high oil prices could be stagflationary.
2. **Inflation:**
Inflation in emerging markets has been on the rise due to commodity prices and currency dynamics. Recent oil price spikes could exacerbate this trend.
3. **Interest Rates:**
Yield on the US 10 year bond has risen. Central banks in China, India and other emerging market countries have begun to tighten for some time to rein in inflation. Rising rates could impact economic growth.
4. **Euro Debt Crisis:**
Although the European authorities have established the European Financial Stabilization Fund to bail out the highly indebted peripheral countries, the debt problem is far from solved and has the potential to adversely impact markets. Yields and credit default spreads for many of the impacted countries have noticeably increased.

5. Currency:

Countries with fixed exchange rates and high reserve accumulation, China in particular, pose a problem to addressing global imbalances. Currency volatility is also on the rise.

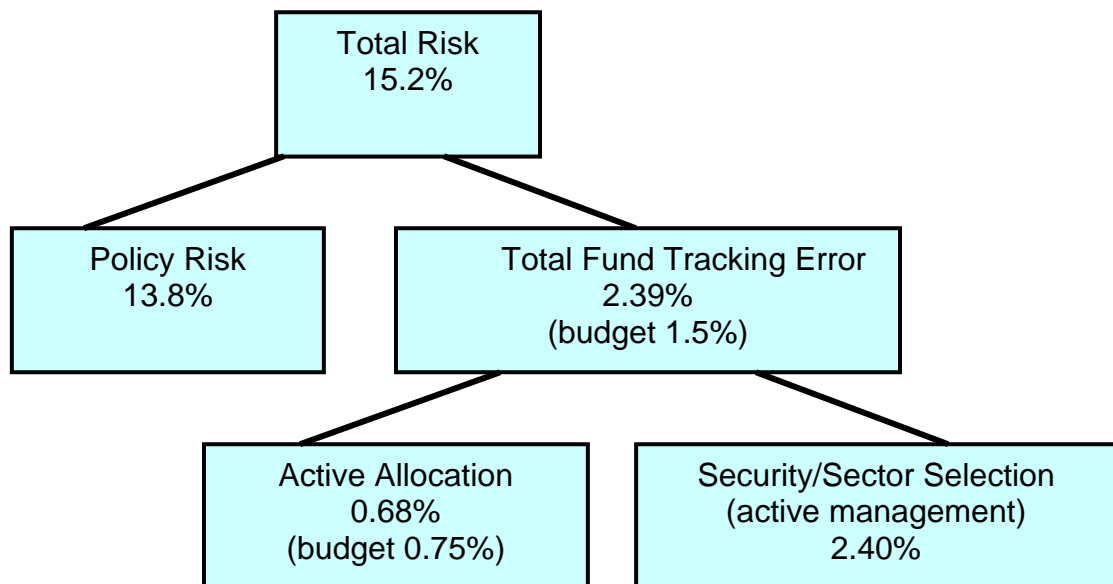
The combination of geopolitical instability, rising commodity prices, and inflationary pressures have the potential to negatively impact the improved growth trends and recent equity rally. The most significant risk in the CalPERS asset allocation is the equity risk estimated to be nearly 90% total risk. Lower growth and inflation will have material impact on returns as they affect equity performance.

Risk Measures

Total Fund Volatility (Forecast as of December 31, 2010)

Appendix page 1 presents CalPERS Total Fund forecast total risk as of December 31, 2010.

CalPERS Total Fund Risk



The above chart shows the projected volatility (standard deviation) for the Total Fund, currently at 15.2%. That total risk amount is composed of two components: policy risk and Total Fund tracking error. Policy risk assumes that

the Total Fund is invested in the policy benchmark, and is currently forecast to be 13.8%, thus the actual Fund portfolio currently has a higher projected risk than the benchmark portfolio. Total Fund tracking error is the expected volatility of active returns between the Total Fund and the policy benchmark, currently forecast to be 2.39%. This is above the Total Fund risk budget of 1.5%, and a 19 basis point increase from the prior quarter's Total Fund tracking error of 2.20%. However, realized Total Fund tracking error for the 12 months ended December 31, 2010 is higher at 2.9%.

Total Fund tracking error is composed of two components: active allocation and security/sector selection (Appendix page 2). Diversification allows the total amount (2.39%) to be less than the sum of the components (0.68% and 2.40%). These components can be used to identify the investment decisions that contribute to Total Fund tracking error. The first is active allocation, or the difference in the actual allocation to each asset class compared to the policy allocation. The active allocation risk budget is 0.75%. The current forecast is just within budget at 0.68%, and has declined and stabilized in recent quarters as asset class allocation has moved closer to policy. The selection component (2.40%), which increased nearly 40 basis points over the previous quarter, is determined by active security selection decisions, as well as sector or strategy bets. These differences can arise from either explicit investment decisions or from benchmark misfit. Staff will be reviewing these active risk limits and proposing expanded ranges in policy for approval by the Committee in the coming months.

Total Fund Asset Allocation vs. Risk Allocation

The pie charts listed in Appendix page 3 compare December 31, 2010 actual asset class allocation to the asset class contribution to the total forecasted volatility of the Fund. Global Equity and AIM contribute a greater percentage to the overall risk of the Fund than their actual allocation. In contrast, Global Fixed Income and the Cash holdings contribute less risk than their allocation, thus they act to reduce the volatility of the Fund. Real Estate and ILAC contribute similar portions to the Total Fund risk as their allocations.

Total Fund Volatility Trends

	Policy Limit	Current Dec 2010	Last Qtr Sept 2010	Last Year Dec 2009	3 Years Ago Dec 2007
Total Risk	Not applicable	15.2%	15.7%	18.6%	7.5%
Policy Risk	Not applicable	13.8%	14.3%	16.4%	7.3%
Total Fund Tracking Error	< 1.5%	2.39%	2.20%	3.2%	0.77%
Active Allocation	< .75%	0.68%	0.65%	1.2%	Not available
Security/Sector	Not applicable	2.40%	2.01%	Not available	Not available

Total Fund forecast total risk is 50 basis points lower than last quarter, in line with declining overall market volatility. Furthermore, the Total Fund active asset allocation tracking error increased slightly, but remains within the policy limit. Total Fund tracking error as a whole increased, due to higher security/sector risk.

Asset Class Volatility

	Global Equity	Global Fixed Income	Real Estate	AIM	ILAC	Cash	Total Fund
Total Risk	19.8%	7.0%	21.1%	28.1%	17.2%	0.5%	15.2%
Policy Risk	19.7%	6.7%	15.6%	33.2%	3.8%	0.0%	13.8%
Tracking Error	0.58%	2.64%	.85%	8.62%	14.60%	0.0%	2.40%

All of the asset classes experienced lower total risk over the last quarter, with the exception of Global Fixed Income. This is in line with the continued general decline in market volatility.

Global Equity continues to have the lowest tracking error of the publicly traded asset classes. Global Fixed Income moved closer to its policy benchmark and reduced tracking error while AIM experienced higher tracking error.

Currency Risk

	Total Risk	Currency Risk Contribution	Tracking Error	Currency Risk Contribution
Risk Measures With Currency Overlay Program	15.2%	1.8%	2.4%	0.4%
Risk Measures Without Currency Overlay Program	15.3%	2.1%	2.9%	0.6%

The above table summarizes the contribution of foreign currency to Total Fund risk both with and without the currency overlay program. The Total Fund benchmark includes the currency overlay program. The currency overlay program, therefore, reduces the contribution of currency holdings to total risk and tracking error. This program offsets some of the currency overweight positions held in the AIM and Real Estate asset classes.

Concentration Measures

The Risk Management Unit monitors Total Fund concentrations across asset classes including country, industry, currency and security asset types. Concentration measures are reviewed monthly as part of the Investment Strategy Group risk report. Current cross asset class industry overweights include capital goods, consumer durables and apparel, and diversified financials. Current industry underweights include energy, food beverage and tobacco, materials, and REITs. Asset type concentrations are an overweight to structured credit and underweight to government bonds. The largest active exposure to a particular country is an underweight to the U.S. This is largely due to AIM and Real Estate holding significant international assets while their benchmarks are largely U.S.

Leverage

All programs are currently within their leverage limits.

	Leverage Limit	Current Leverage
Global Equity	10%	2.6%
Securities Lending	70%	46.0%
Real Estate	60%	51.7%
Infrastructure	65%	41.4%
Forestland	50%	19.4%

(Further detail provided in Appendix page 4)

Counterparty Exposure

The derivative counterparty exposure report (Appendix page 5) summarizes net amounts owed to or due from CalPERS investment counterparties. Amounts are aggregated for currency forwards, options, swaps and TBA securities. TBA are forward settled mortgage-backed securities. Amounts owed to CalPERS result in counterparty risk. As of January 31, 2011, there were no exposures owed to CalPERS requiring collateral postings.

Liquidity

Staff presented in a prior agenda item a liquidity schedule for the Total Plan. Appendix page 6 presents a more detailed liquidity schedule organized by investment program. Trading costs including estimates of market impact as a result of selling securities are considered in this analysis. Liquidity is heavily dependent upon market conditions and this analysis assumes that current market conditions will continue into the future. Staff will continue to monitor liquidity as market conditions change.

V. STRATEGIC PLAN:

This item is consistent with Strategic Plan Goal VIII, manage the risk and volatility of assets and liabilities to assure that sufficient funds are available, first, to pay benefits and, second, to minimize and stabilize contributions.

VI. RESULTS/COSTS:

This item provides information to the Committee on the assets and performance of the fund. There are no additional costs associated with this item.

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